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THE CUMMINGS SYSTEM OF CONCRETE REINFORCEMENT

Reinforced Concrete

ELECTRIC
WELDING
COMPANY.
PITTSBURGH, PA.

Patents.

The following described CUMMINGS SYSTEM products are protected by the following U. S. patents issued, others pending.

No. 761287	May	31,	1904.
761288	"	"	"
764883	July	12,	1904.
764884	"	"	"
815409	March	20,	1906.
822587	June	5,	"
822588	"	"	"
822589	"	"	"
828931	August	21,	"
871210	Nov.	19,	1907.
879148	Feb.	18,	1908.
884010	April	7,	"
917259	"	6,	1909.
975514	Nov.	15,	1910.
911062	Feb.	2,	1909.
978361	Dec.	13,	1910.

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Electric Welding Co., Pittsburgh, Pa.

1D 88-B35216 TCE

PREFACE

THE most important feature of reinforcing concrete construction is the problem of combining the practical work in the field with the theoretical requirements of design. While there are several systems where this has, in part, been accomplished, THE CUMMINGS SYSTEM, which has no LOOSE RODS, is complete and combines, successfully, both theory and practice.

We are the exclusive licensees of THE CUMMINGS SYSTEM under the patents of Robert A. Cummings, Pittsburgh, Pa. and manufacture and supply complete lines of steel reinforcement for all kinds of concrete structures in FACTORY MADE UNITS. Special bending of RODS to any shape; EFFICIENCY TOOLS and machinery for concrete contractors; and EFFICIENCY steel window sashes.

The following pages show a few of the EFFICIENCY features of THE CUMMINGS SYSTEM, which distinguishes it from all other methods.

FEBRUARY, 1912

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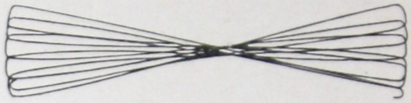
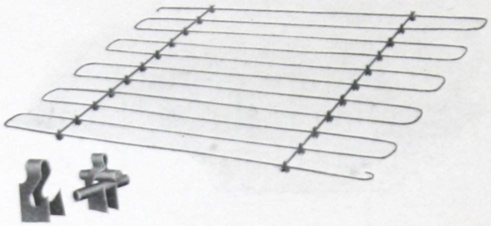
Folded Wire Fabric

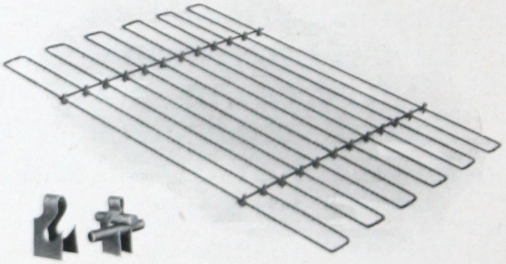




Folded Wire Fabric is used for reinforcing roof and floor slabs. The fabric is assembled into individual sheets of the desired dimensions, in any size or spacing of wire. It consists of straight wire folded into loops, with two or more shrinkage cross bars placed perpendicular to the loop and fastened at each intersection. All the steel is accurately spaced with our Spacing Bar or Chair Lock. By this means, also, the reinforcement is supported in its correct position while concreting. The fabric is shipped flat in bundles. Standard sizes of sheets correspond with those of expanded metal. The folded wire can be furnished collapsed in bundles for assembling in the field with our Spacing Bar or Chair Lock.

Note:—When writing for our Quotations, give Size of Sheets, Quantity and Delivery wanted. Consult our Data Tables for Size and Spacing of Wire for Safe Loads.

Slab Rod Units

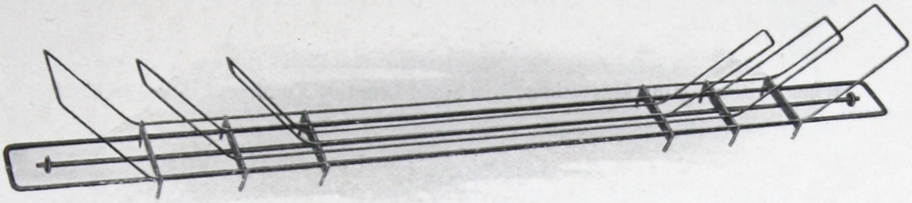


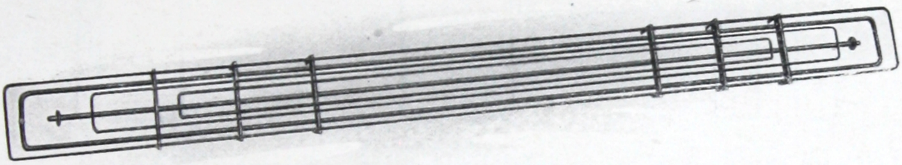
Slab Rod Units are used for reinforcing extra heavy floors and roofs. These units are made up from rods $\frac{3}{8}''$ to $\frac{3}{4}''$ thickness assembled into sheets of any desired dimensions. Each unit sheet consists of a number of separate rectangular frames accurately spaced and securely fastened to shrinkage cross-bars by our supporting Chair Lock. These units are shipped flat in bundles.

When writing for our Quotations, give Size of Unit Sheet, Quantity and Delivery wanted. Consult our Data Tables for Size and Spacing of Rods and for Safe Loads.

Loop Truss

Loop Truss is used for reinforcing concrete beams and girders. It consists of a number of rods provided with anchors at the ends. These rods are assembled into one complete unit member and adapted to any span. All the rods are rigidly fastened together at several points by means of a Chair Lock, which is also used for supporting and holding the rods in correct position while concreting. Thus all the rods for beam or girder are made into one unit member that cannot be displaced nor omitted. The Loop Truss Unit is not bent nor distorted by rough handling. It is shipped flat and compact, and takes the minimum freight rate.





When writing for our Quotations, give Span center to center of Supports, Sectional Area of Steel at the center of span or Distributed Load. Number of Loop Trusses and Delivery wanted.

Twisted Rods

Twisted Rods are used wherever reinforcement is required. They are furnished from 3/8″ to 1¼″ in thickness, and of any length.

When writing for our Quotations, give Sizes, Lengths, Number of Pieces and Delivery wanted.

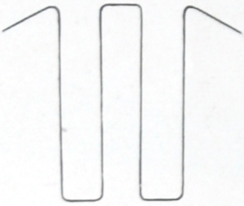
Anchor Rods

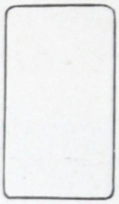
Anchor Rods are used wherever reinforcement is required. They are furnished from ⅜″ to 1½″ in diameter and of any length.

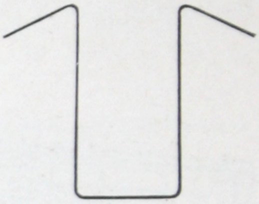
When writing for our Quotations, give Sizes, Lengths, Number of Pieces and Delivery wanted.

Stirrups

Stirrups are used for resisting shearing stresses in concrete beams, girders, brackets, footings, etc. Size of steel usually varies from ¼″ to ½″ and the dimensions to suit the member. Stirrups for each member are fastened into a bundle, distinctly labeled and marked for the proper position to be placed in the work.

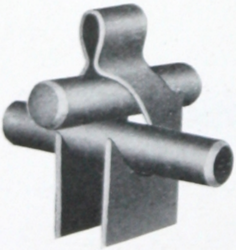


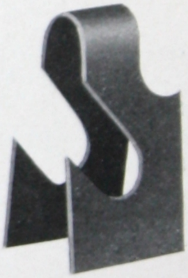




When writing for our Quotations, give full Dimensions, Size of Steel, Number, and Delivery wanted.

Chair Lock

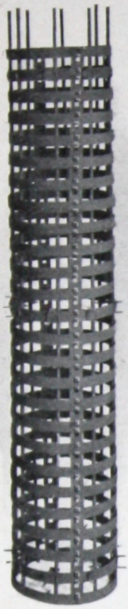


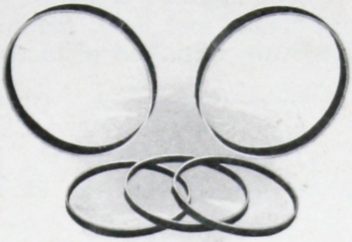


Chair Lock is used for fastening rigidly and supporting all kinds of cross-rods, also, for flat band-iron stirrups in slabs and beams. Stock sizes are as follows:—⅜″ round cross-rod by ⅜″, ½″, ⅝″, ¾″ and ⅞″ round main rods. But, any size can be furnished to fit any shape of rod. The Chair Locks are shipped in kegs marked for the proper place in the work. See also "Chair Pinchers."

When writing for our Quotations, give Size, Shape of Cross and Main Rods, Distance in the clear between Rod and Forms, Number, and Delivery wanted.

Hoop Bands and Columns

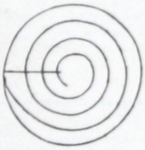


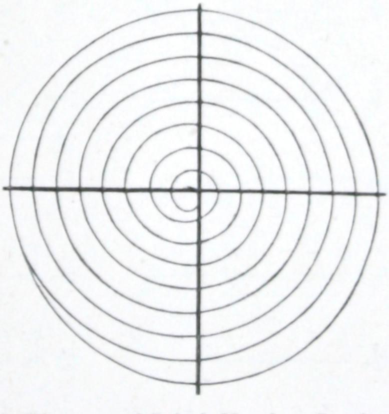


Hoops and Bands are used for reinforcing and strengthening columns, piles, poles, footings, and the heads of columns in flat-slab floors. Hoops are electrically welded, hence they are stronger at the weld than in the bar. Hoops or bands are assembled into Column Units by means of our Spacing Bar, which securely and rigidly holds each hoop in place. Such columns are marked and shipped as a Complete Unit ready for placing in the work. Hoops or bands are furnished in any size or dimension and shipped loose, or marked and tagged and shipped in bundles.

When writing for our Quotations, give Inside Diameter and Section of Hoop or Bands, as well as Spacing, Length and Number of Columns wanted. For Loose Hoops or Bands give Inside Diameter, Section of Steel, Number, and Delivery wanted.

Flat Spirals



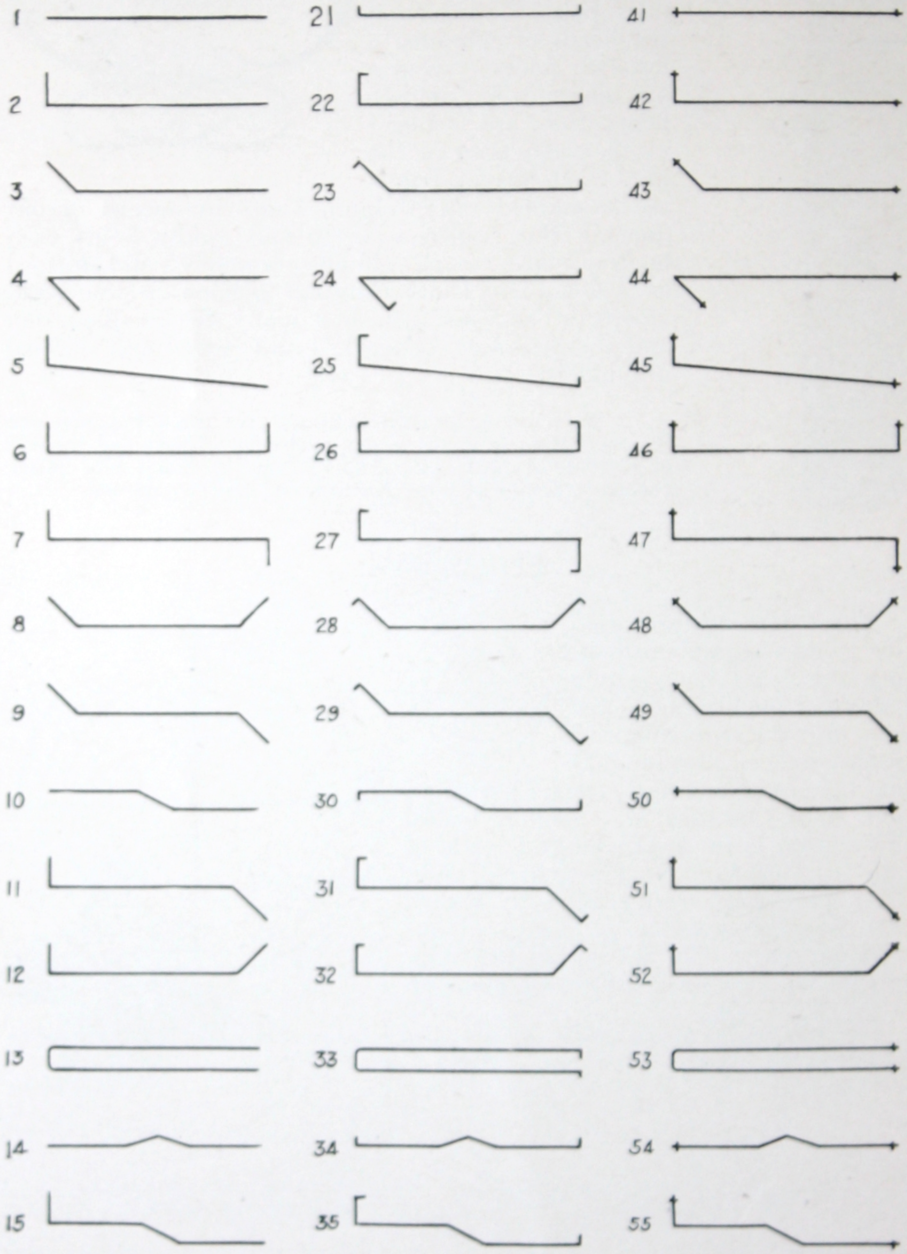


Flat Spirals are used for reinforcing and cushioning the head of concrete piles and for increasing the safe unit stress in compression members, also for taking the circumferential stresses in domes, flat slabs, footings and column heads. The spiral is in one plane and made of any size steel from No. 9 wire to $\frac{3}{4}''$ rods. The spiral rods are mechanically spaced and held in position by means of our Spacing Bar. The flat spirals are shipped in bundles marked for each member.

When writing for our Quotations, give Outside Diameter of Spiral, Number, Spacing of Coils center to center and Delivery wanted.

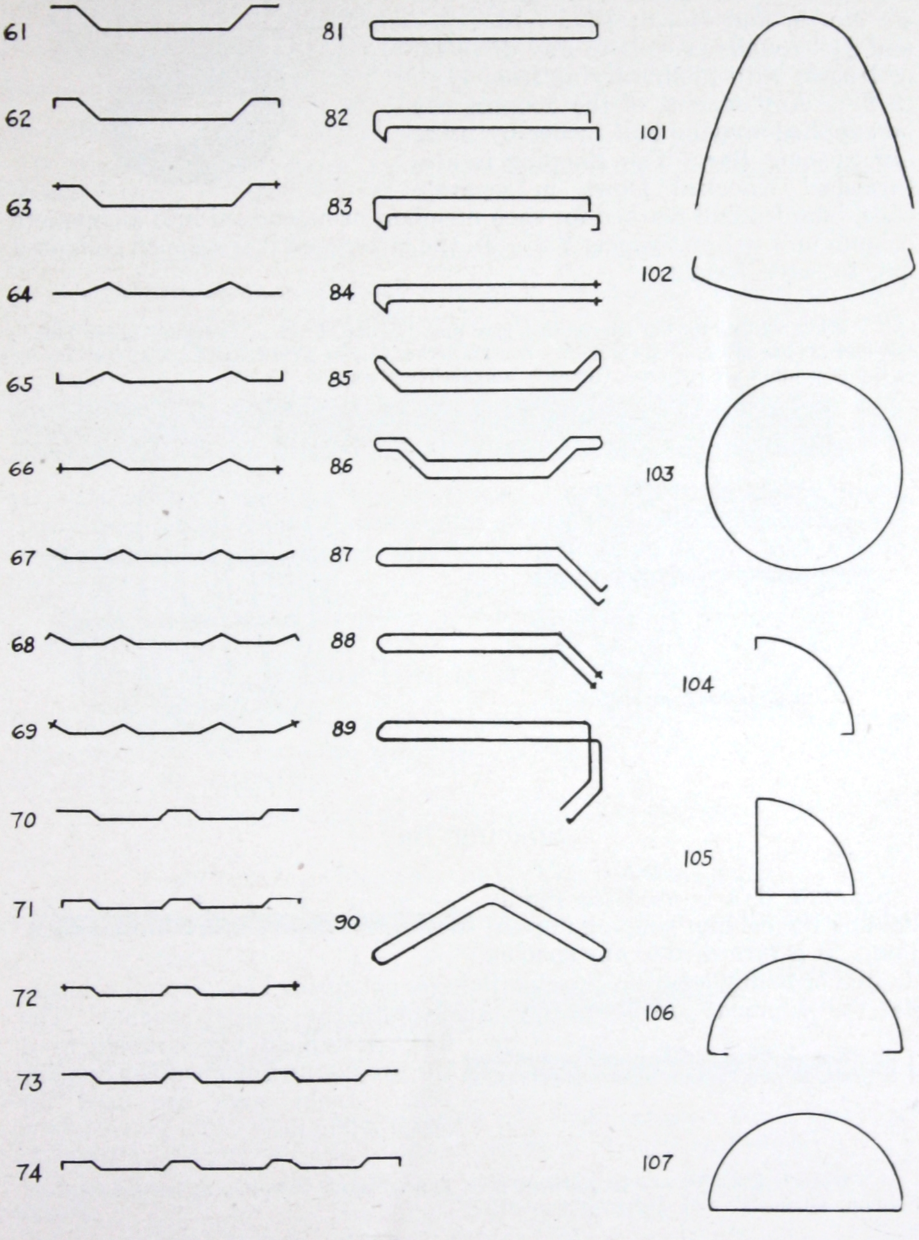
Loose Bent Rods

Loose Bent Rods are used for reinforcing columns, beams, girders, and floors, roof slabs, footings, walls, brackets and stairs. Loose Bent Rods are furnished plain or twisted in any size or length that can be

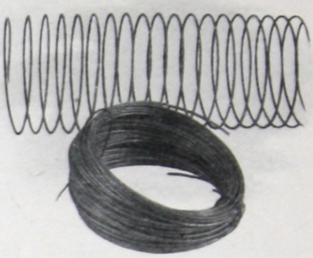


shipped in railroad cars. They are shipped by fastening the rods for each member into bundles and distinctly labeling each bundle to facilitate handling and shipment.

When writing for our Quotations, give full Dimensions, Type, Sizes, Lengths, Number of Pieces, and Delivery wanted.

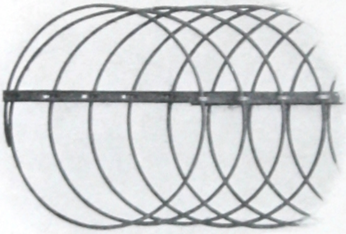


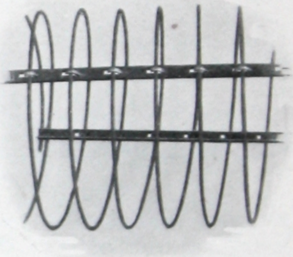
Helical Hooping for Columns



Helical or Spiral Hooping is used for reinforcing columns, poles, piles, and similar members. The hooping is furnished in seven sizes: Wire gauge No. 4°, No. 0, and No. 3; ½″, 7-16″, ⅜″ and ¼″ rounds in coils to any diameter or length, with pitch varying from 1½″ to 3″. Any spacing of the hooping can be supplied varying half inches by using our Spacing Bar. The Hooping is also furnished Knocked Down in separate coils, bundled and marked for each member, or assembled into a complete column unit with a Spacing Bar. In the latter case it is shipped collapsed flat to save freight.

When writing for our Quotations, give Size, Section, Pitch of Hooping, Inside Diameter and Length of Finished Column. State whether One or Two Extra Laps at the bottom or top of column are required, Quantity and Delivery wanted.





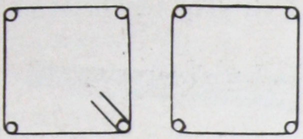
Spacing Bar

Spacing Bar is used for rigidly holding the column hooping in position. It is furnished to any spacing desired or to any length. Spacing Bars for collapsing heavy spiral columns flat for shipment are accurately punched to the desired spacing. The hooping is held by clamping to it the projecting fingers of the Spacing Bar. Light sizes are used for small columns.

When writing for our Quotations, give Type, Size of Hooping, Spacing, Length of Column, Quantity, and Delivery wanted.

Column Ties

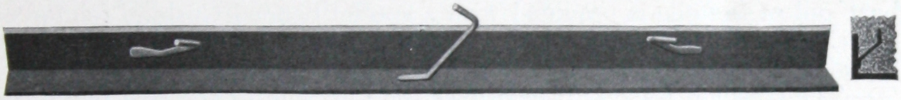
Ties are used for rigidly holding the longitudinal rods in columns, piles, poles, beams and other members in the correct position. Ties are made from a wire or a flat bar bent into a frame of the desired shape and the ends electrically welded. In the flat bar frame, holes are punched on the edges of the frame in which the rods are placed. The corners of the holes are then burred over the rods, thus fastening the rods in position. Wire Ties are made for any Size or Spacing of Rods.



When writing for our Quotations, give Size, Section of Rods, General Dimensions for Spacing, Number, Type and Delivery wanted.

Stair or Curb Nosing and Corner Bead

Curb Nosing for sidewalks consists of an Angle, Channel or other Section, with Anchor Loops electrically welded to the inside of the web, for anchoring the Nosing in the concrete. These are furnished straight or bent to any radius for corner curves. This Curb Nosing makes a cheaper and better looking construction than the loose countersunken bolt heads, usually specified, which invariably have the heads projecting from the finish face of Curb.



When writing for our Quotations, give Section, Length, Quantity and Delivery wanted.

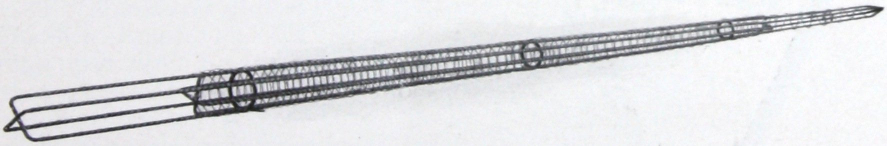
Ceiling Inserts or Sockets

Ceiling Inserts or Sockets are used for fastening shafting and other attachments to the concrete structure. They are furnished in multiples of one foot or separately.

When writing for our Quotations, give Length, Number and Delivery wanted.

Concrete, Telegraph and Telephone Poles

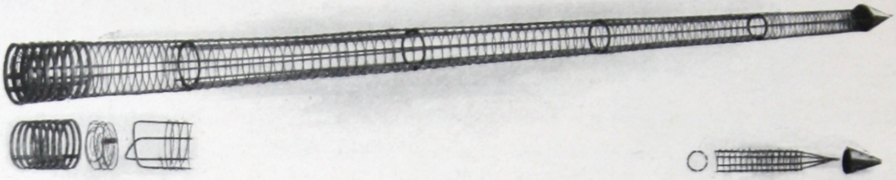
Concrete Telegraph and Telephone Pole reinforcement is similar in all respects to the concrete pile reinforcement shown on page 12, except that neither the Cushion nor Shoe Steel is provided.



When writing for our Quotations, give Length, Number, Strength and Delivery required.

Concrete Piles

Concrete Pile reinforcement is made to suit any cross section of piles, and is furnished for any length of pile desired, from fifteen feet to sixty feet. Standard lengths are multiples of five feet. The reinforcement consists of longitudinal rods anchored at the ends by electrically welding them together. This guarantees against slipping of the rods and cracking of the concrete while handling the concrete pile during the operation of driving. The rods are accurately spaced and held in position by our Ties, and the outside is wrapped with a No. 9 wire helix. For heavy driving the butt end of the pile is provided with a special banded Cushion reinforcement. The Cushion is made by assembling into a Unit Cage our Flat Spirals, Hoops and Spacing Bar.



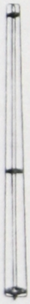
The Cushion Cage is placed over the butt end of the Pile reinforcement. The pile reinforcement is assembled at the factory and shipped ready for placing in the forms, or knocked down in separate parts ready for assembling in the field. Steel shoes are provided when required.

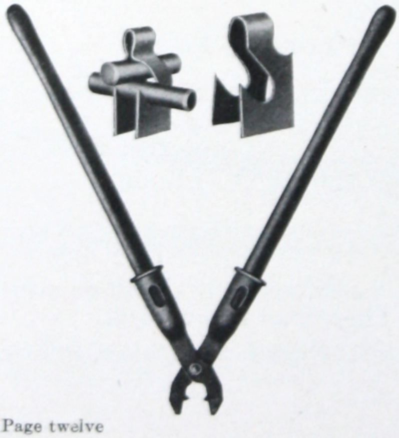
When writing for our Quotations, give Length, Number and Delivery wanted. Send for the Bulletin on Cummings Concrete Piles.

Concrete Fence and Clothes Post

Concrete Fence and Clothes Post reinforcement consists of steel rods or wire Anchored at the ends by looping them, and Spacers for holding the rods in place while concreting.

When writing for Quotations, give Length, Number, and Delivery wanted.





Chair Pinchers

Chair Pinchers are furnished in two sizes for fastening our Chair Lock to cross-rods. They are more efficient than ordinary pinchers and make a positively tight fastening between any two cross-rods. They are used wherever reinforcement is required for retaining walls, floors or other similar positions.

When writing for our Quotations, give Size of Cross and Main rods or Chair Lock, Number and Delivery wanted.

Efficiency Rod Bender

Efficiency Rod Bender is furnished for hand bending rods in the field to any shape, when it is impossible to purchase bent rods from the factory. It is made in three sizes: Types 1, 2 and 3, for large and smaller rods respectively.

When writing for our Quotations, give Size of Rods desired to bend and Delivery wanted.

Efficiency Rod Straightening Machine

Efficiency Rod Straightening Machine is furnished for straightening rods in the field. It is made in two standard sizes: Types 1 and 2, for large and small rods.

When writing for our Quotations give Size of Rods to Straighten, and Delivery wanted.

Efficiency Steel Forms and Conveyor Chutes

Efficiency Steel Forms of sheet steel are designed and furnished for moulding special shapes of piles, poles or adjustable centering for arches. We also furnish Conveyor Chutes and Hoppers for depositing concrete from elevated towers.

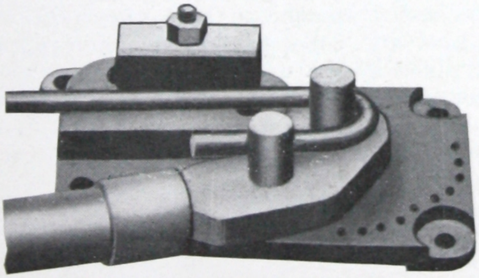
Efficiency Steel Window Sash and Doors

We are providing our plant with additional equipment for the purpose of supplying the trade with Universal Steel Window Sash and Doors. Details of this will be furnished in a Special Catalogue.

Efficiency Rod Bender

Lightest, Simplest and Least expensive bender for shop or field work.

Adjustable for bending cold any size rod to any angle desired.



Constructed entirely of steel. Stock on hand for quick delivery.

Write at once for price

Seven Reasons Showing the Advantage and Adaptability of the Cummings System

THE CUMMINGS SYSTEM is ideal, technically, because the design is theoretically correct. There is an exact distribution of steel to resist all tensional stresses, and to increase the unit value of concrete in compression.

THE CUMMINGS SYSTEM, therefore, produces the greatest possible economy by completely utilizing every pound of steel.

THE CUMMINGS SYSTEM has been theoretically tested at various Testing Laboratories, including the United States Watertown Arsenal, University of Illinois, Lehigh Valley Testing Laboratory, etc. The results of such tests have proven its superiority in every respect. The shear members are part of the main rods and the ends of all rods are anchored, thus, there can be no initial slip of the reinforcement.

THE CUMMINGS SYSTEM has been tested practically and approved by the Bureau of Buildings of the City of New York, Philadelphia, Pittsburgh, etc., etc. It complies with all the rules of the National Board of Fire Underwriters and Insurance Companies.

THE CUMMINGS SYSTEM is practical, simple, reliable and a proven method of reinforcement adapted to all kinds of concrete structures, a fact demonstrated during the past ten years without the suggestion of a failure. It has been used for every kind of building, residences, factories, machine shops, warehouses, grain elevators, bins, tanks, bridges, arches, railroad trestles, sewers, curbing, railroad cross-ties, street railway trolley poles, concrete piles, telegraph poles, fence and clothes posts.

THE CUMMINGS SYSTEM assures the accurate and proper spacing of all reinforcement, and affords every facility for inspection before placing the concrete. There are NO LOOSE RODS in this System.

THE CUMMINGS SYSTEM saves labor on the job, the reinforcement being furnished in Factory-made-Units. This not only saves time in placing, but eliminates inaccurate and uncertain work. The various Units are assembled and collapsed at our Factory, marked and tagged for their proper place in the work and SHIPPED FLAT, in the smallest space at the LOWEST freight rates. The handling and storage of these Units on the job is the cheapest and most convenient method possible, because the number of separate unit frames in our system is less than any other method in use.

Facilities and Deliveries

Our shops are especially equipped for the fabrication of steel reinforcement for concrete, with a capacity to handle 50 tons per day. We carry a stock of steel to meet telegraphic demands. We have railroad sidings connected to all the railroads of the Pittsburgh District and can make prompt shipment on short notice.

Prices

Our Prices are reasonable and consistent and will be cheerfully furnished for delivery to any railroad point in the United States, Canada or Mexico, or to any port for export. Our products are sold F. O. B. our shops or F. O. B. destination.

If you will furnish us with Your Plans and Specifications, we shall be pleased to quote a Lump Sum Price for the Complete reinforcement of any concrete structure. We guarantee the material and finish of our work to be strictly as represented.

Co-Operative Service

We maintain an information bureau for the purpose of giving Technical aid regarding any problems involving the use of the CUMMINGS SYSTEM. This does not involve any obligation to you whatsoever. To further this co-operation we invite correspondence.

References and Guarantee

As a guarantee of reliability, the CUMMINGS SYSTEM has been in use for ten years without a suggestion of a failure. The concrete structures erected on the CUMMINGS SYSTEM in the United States and Europe are too numerous to list here, but the following are types of such structures:

Water and Sewage Tanks,
Grain Elevators,
Machine Shops,
Telegraph Poles,
Concrete Piles,
Docks,
Railroad Trestles,
Fire Brick Works,
Woodworking Mills,
Arch Bridges,
Warehouses,
Ore Bins,
Railroad Cross-ties.

Free Catalogues

Write us for our descriptive catalogues. They are free and will be sent on request when your business stationery is used.